

REPORT ON ELECTRIC LIGHTING INSTALLATION.

Port of Belfast

Received at London Office 20 September 1894

No. 4415 *

No. in Reg. Book. Name of Ship "Ching Wo" Built at Belfast When built 1894-9 mo.

Electric Light Installation fitted by Paterson & Coopers 137 W. Regent St Glasgow when fitted September 1894

DESCRIPTION OF DYNAMO AND ENGINE.—

Vertical inverted cylinder Special Electric Light Engine capable of developing 8 horse power with 80 lbs steam
3 1/2 inch dia 5 inch stroke coupled direct on same bedplate to a Phoenix Dynamo Speed 350 revs

Capacity of Dynamo 50 Amperes at 100 Volts, whether continuous or alternating current continuous

Where is Dynamo fixed Aft end of Engine Room Bottom platform

LAMPS.—

Is vessel wired on single or double wire system double Total number of lights 70 arranged in the following groups:—

Group	Description	Lights	Candle Power	Current (Amperes)
A	Saloon	24	16	18
B	Forward	4	16	4.8
C	Aft	5	16	10.7
D	Engine Room	17	16	10.7
E	—	—	—	—
	1 double filament Mast head light with lamp each of	37	—	1.7
	2 double filament Side lights with lamp each of	37	—	7.4
	4 Cargo lights of 3 lamps each, of	37	—	—

If arc lights, what protection is provided against fire, sparks, &c. _____

SWITCHES AND CUT-OUTS.—

Position of Main Switch Board Beside Engine having switches to groups A, B, C, D of lights as above

Positions of other switch boards and numbers of switches on each _____

If cut outs are fitted to main circuit Yes and to each auxiliary circuit Yes

and at each position where cable is branched or reduced in size Yes

If vessel is wired on the double wire system are cut outs fitted on each wire Yes at Mains & principal branches

Are the cut outs of non-oxidizable metal Yes and constructed to fuse at an excess of about 50% per cent over the normal current

Are all cut outs fitted in easily accessible positions Yes

In vessels built for carrying petroleum, are all switches and cut-outs fitted in positions not liable to the accumulation of petroleum vapour or gas _____

How are the lamps specially protected in places liable to the accumulation of vapour or gas _____

Are all switches and cut-outs constructed of unflammable materials and fitted on unflammable bases Yes

DESCRIPTION OF CABLES.—

Cable Type	Capacity (Amperes)	Wires	Gauge Diameter
Main cable carrying	<u>50</u>	<u>19</u>	<u>16</u> legal standard wire gauge diameter
Branch cables carrying	<u>27</u>	<u>4</u>	<u>16</u> legal standard wire gauge diameter
Branch cables carrying	<u>12</u>	<u>4</u>	<u>18</u> legal standard wire gauge diameter
Leads to lamps	<u>4</u>	<u>4</u>	<u>22</u> legal standard wire gauge diameter
Cargo light cables carrying	<u>3.6</u>	<u>1</u>	<u>18</u> legal standard wire gauge diameter
Cargo light cables carrying	<u>3.6</u>	<u>140</u>	<u>40</u> legal standard wire gauge diameter

The copper used has a conductivity of 98 per cent. that of pure copper.

Insulation of cables is guaranteed to have a resistance of not less than 600 megohms per statute mile after 24 hours' immersion in seawater

DESCRIPTION OF INSULATION, PROTECTION, &c.—

Insulation of pure para rubber & two coats vulcanising rubber, India rubber proofed tape. The whole vulcanised together braided & compounded

Joints in cables, how made, insulated, and protected Splead & soldered, then covered with two layers pure rubber tape, coated with rubber solution, then two layers of prepared tape & again coated with rubber solution

Are all the joints of cables thoroughly soldered, resin only having been used as a flux *Yes*

How are cables led throughout the ship In strong grooved wood casing, except through holds & large spaces where they are run in iron barrel

What special protection has been provided for the cables in open alleyways *Avoided*

What special protection has been provided for the cables near galleys or oil lamps or other sources of heat *Avoided*

What special protection has been provided for the cables near boiler casings *Avoided*

What special protection has been provided for the cables in engine room *Heavy pine runs blocked from casing to prevent damage by damp*

How are cables carried through decks *Brass-tubs lined with teak wood* and through bulkheads *Teak wood plugs*

Are any cables run through coal bunkers *No* or cargo spaces *Yes* If so, how are they protected *iron pipe*

Are any lamps fitted in coal bunkers or spaces which may be used for cargo *Yes*

If so, how are they specially protected *Heavy iron shutters*

Cargo light cables, whether portable or permanently fixed *portable* How fixed *terminals mounted on slab protected by cast iron cover*

In vessels fitted on the single wire system, how is the dynamo terminal fixed to the hull of vessel

How are the returns from the lamps connected to the hull

Are all the joints with the hull in accessible positions

TESTING, &c.—

Has the installation been thoroughly tested to its full capacity during a trial of *6* hours' duration *Yes*

The insulation resistance of the whole installation was not less than *150,000* ohms

The installation is supplied with a voltmeter and an amperemeter, fixed on *Switchboard*

General Remarks.—

The whole installation is fitted with the best material, & in accordance with Fire Insurance Co's rules for land installations, & in accordance with the suggestions issued by Lloyds Committee

The foregoing statements are a correct description of the Electric Light installation fitted by us on this vessel and we declare that it is at this date in good order and safe working condition.

Pro PATERSON & COOPER,

J. George Todd

SOFT. ENG. & MANAGER

Electrical Engineers

Glasgow

Date *14 September 1894*

COMPASSES.—

Distance between dynamo and standard compass *75' - 0"*

Distance between dynamo and steering compass *72' - 6"*

The nearest cables to the compasses are as follows:—

Double wiring throughout

A cable carrying _____ Amperes _____ feet from standard compass _____ feet from steering compass

A cable carrying _____ Amperes _____ feet from standard compass _____ feet from steering compass

A cable carrying _____ Amperes _____ feet from standard compass _____ feet from steering compass

Have the compasses been adjusted with and without the electric installation at work at full power

The maximum deviation due to electric currents, etc., was found to be _____ degrees on _____ course in the case of the standard compass

and _____ degrees on _____ course in the case of the steering compass.

Builder's Signature _____ Date _____

A. L. Jones

Surveyor's Signature _____ Date _____

24 September 1894



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